

**ABSTRACT**

Touch input systems for use with information display systems and methods distinguishing multiple touches overlapping in time. The touch input systems and methods  
5 analyze and optimize data collected on the X axis over time independently from that collected on the Y axis, and for each (X, Y) pair corresponding to a potential touch location, calculate correlation values between X magnitudes and Y magnitudes. The touch input system determines valid touch locations based on the correlation values. Because the touch input systems and methods of the present invention can process multiple concurrent touches, they  
10 can be used in applications for multiple users, such as games, and in other applications requiring the processing of concurrent touch inputs.